

UniProtKB/Swiss-Prot entry P30440

Entry information

Entry name	FEL1B_FELCA
Primary accession number	P30440
Secondary accession numbers	None
Integrated into Swiss-Prot on	April 1, 1993
Sequence was last modified on	April 1, 1993 (Sequence version 1)
Annotations were last modified on	April 3, 2007 (Entry version 55)

Name and origin of the protein

Protein name	Major allergen I polypeptide chain 2 [Precursor]
Synonyms	Allergen Fel d 1-B Fel d I-B Allergen Cat-1 AG4 Fdl
Gene name	Name: CH2
From	Felis silvestris catus (Cat) [TaxID: 9685]
Taxonomy	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Laurasiatheria; Carnivora; Feliformia; Felidae; Felinae; Felis.

References

- [1] NUCLEOTIDE SEQUENCE [MRNA], AND PROTEIN SEQUENCE OF 18-100.
PubMed=1946388
Morgenstern J.P., Griffith I.J., Brauer A.W., Rogers B.L., Bond J.F., Chapman M.D., Kuo M.-C.;
"Amino acid sequence of Fel dI, the major allergen of the domestic cat: protein sequence analysis and cDNA cloning.";
Proc. Natl. Acad. Sci. U.S.A. 88:9690-9694(1991).
- [2] NUCLEOTIDE SEQUENCE, ALTERNATIVE SPLICING, AND VARIANTS.
TISSUE=Liver;
DOI=10.1016/0378-1119(92)90405-E; PubMed=1572548
Griffith I.J., Craig S., Pollock J., Yu X.-B., Morgenstern J.P., Rogers B.L.;
"Expression and genomic structure of the genes encoding FdI, the major allergen from the domestic cat.";
Gene 113:263-268(1992).
- [3] PROTEIN SEQUENCE OF 18-37, AND CHARACTERIZATION.
DOI=10.1016/0161-5890(91)90141-6; PubMed=1712068
Duffort O.A., Carreira J., Nitti G., Polo F., Lombardero M.;
"Studies on the biochemical structure of the major cat allergen Felis domesticus I.";

Mol. Immunol. 28:301-309(1991).

[4] CHARACTERIZATION.

DOI=10.1016/0091-6749(84)90278-1; PubMed=6747135

Leitermann K., Ohman J.L. Jr.;

"Cat allergen 1: biochemical, antigenic, and allergenic properties.";

J. Allergy Clin. Immunol. 74:147-153(1984).

[5] X-RAY CRYSTALLOGRAPHY (1.85 ANGSTROMS) OF 18-109.

DOI=10.1074/jbc.M304740200; PubMed=12851385

Kaiser L., Gronlund H., Sandalova T., Ljunggren H.G., van Hage-Hamsten M., Achour A., Schneider G.;

"The crystal structure of the major cat allergen Fel d 1, a member of the secretoglobin family.";

J. Biol. Chem. 278:37730-37735(2003).

Comments

- **SUBUNIT:** Heterotetramer composed of two non-covalently linked disulfide-linked heterodimer of chains 1 and 2.
- **SUBCELLULAR LOCATION:** Secreted protein.
- **ALTERNATIVE PRODUCTS:** 3 named isoforms [FASTA] produced by alternative splicing. Experimental confirmation may be lacking for some isoforms.

Name 1

Synonyms CH2L

Isoform ID P30440-1

This is the isoform sequence displayed in this entry.

Name 2

Synonyms CH2S

Isoform ID P30440-2

Features which should be applied to build the isoform sequence: VSP_004249.

Name 3

Synonyms CH2ST, Truncated

Isoform ID P30440-3

Features which should be applied to build the isoform sequence: VSP_004248.

- **TISSUE SPECIFICITY:** The long form is preferentially expressed in the salivary gland, while the short form is preferentially expressed in the skin.
- **ALLERGEN:** Causes an allergic reaction in human. Binds to IgE. Major allergen produced by the domestic cat. Implicated as an asthma-inducing agent in human. This protein is sticky and easily adheres to walls, carpet, clothing, furniture and bedding.

Copyright

Copyrighted by the UniProt Consortium, see <http://www.uniprot.org/terms>. Distributed under the Creative Commons Attribution-NoDerivs License.

Cross-references

Sequence databases	
EMBL	M77341; AAC41616.1; -, mRNA. X62478; CAA44345.1; -, Genomic_DNA.
PIR	B53283; B53283. C56413; C56413. JC1127; JC1127.
3D structure databases	
PDB	1PUO; X-ray; A/B=-. 1ZKR; X-ray; A/B=1-93.
Other	
LinkHub	P30440; -.
Implicit links to	ProDom; HOVERGEN; BLOCKS; ProtoNet; ModBase; UniRef.

Keywords

3D-structure; Allergen; Alternative splicing; Direct protein sequencing; Glycoprotein; Polymorphism; Signal.

Features

Key	From	To	Length	Description	FTId
SIGNAL	1	17	17		
CHAIN	18	109	92	Major allergen I polypeptide chain 2.	PRO_000002124
CARBOHYD	50	50		N-linked (GlcNAc...).	
DISULFID	24	24		Interchain (with C-92 in chain 1).	
DISULFID	65	65		Interchain (with C-66 in chain 1).	
DISULFID	90	90		Interchain (with C-25 in chain 1).	
VAR_SEQ	82	109		TTISSSKDCMGEAVQNTVEDLKLNTLGR -> PSTNIAWVKQFRTP (in isoform 3).	VSP_004248
VAR_SEQ	82	89		TTISSSKD -> IAINLEY (in isoform 2).	VSP_004249
VARIANT	72	72	1	I -> L (in CH2LV).	
VARIANT	72	72	1	I -> V (in CH2SV).	
VARIANT	74	75	2	RV -> KF (in CH2SV).	
VARIANT	91	91	1	M -> T (in CH2LV).	
VARIANT	96	96	1	Q -> E (in CH2SV).	
VARIANT	105	105	1	N -> K (in CH2SV).	
CONFLICT	24	24		C -> F (in Ref. 3).	
CONFLICT	32	32		F -> T (in Ref. 3).	
HELIX	1	12	12		
HELIX	15	18	4		
STRAND	19	23	5		
HELIX	25	35	11		
HELIX	39	48	10		

HELIX	53	68	16
HELIX	71	73	3
STRAND	74	76	3
HELIX	77	85	9
TURN	88	90	3

Sequence information

Length: **109 AA** [This is the length of the unprocessed precursor]

Molecular weight: **11854 Da** [This is the MW of the unprocessed precursor]

CRC64: **857FB9CD76036CB9** [This is a checksum on the sequence]

<u>10</u>	<u>20</u>	<u>30</u>	<u>40</u>	<u>50</u>	<u>60</u>
MRGALLVLAL	LVTQALGVKM	AETCPIFYDV	FFAVANGNEL	LLDLSLTKVN	ATEPERTAMK
<u>70</u>	<u>80</u>	<u>90</u>	<u>100</u>		
KIQDCYVENG	LISRVLDGLV	MTTISSSKDC	MGEAVQNTVE	DLKLNTLGR	